



## King's Research Portal

DOI:

[10.1016/j.adolescence.2016.04.002](https://doi.org/10.1016/j.adolescence.2016.04.002)

*Document Version*

Publisher's PDF, also known as Version of record

[Link to publication record in King's Research Portal](#)

*Citation for published version (APA):*

Gaete, J., Rojas-Barahona, C.A., Olivares, E., & Araya, R. (2016). Brief report: Association between psychological sense of school membership and mental health among early adolescents. *Journal of Adolescence*, 50, 1-5. <https://doi.org/10.1016/j.adolescence.2016.04.002>

### Citing this paper

Please note that where the full-text provided on King's Research Portal is the Author Accepted Manuscript or Post-Print version this may differ from the final Published version. If citing, it is advised that you check and use the publisher's definitive version for pagination, volume/issue, and date of publication details. And where the final published version is provided on the Research Portal, if citing you are again advised to check the publisher's website for any subsequent corrections.

### General rights

Copyright and moral rights for the publications made accessible in the Research Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognize and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the Research Portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the Research Portal

### Take down policy

If you believe that this document breaches copyright please contact [librarypure@kcl.ac.uk](mailto:librarypure@kcl.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.



## Brief report: Association between psychological sense of school membership and mental health among early adolescents



Jorge Gaete<sup>a, b, \*</sup>, Cristian A. Rojas-Barahona<sup>c, 1</sup>, Esterbina Olivares<sup>d, 2</sup>, Ricardo Araya<sup>a</sup>

<sup>a</sup> Department of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, Keppel Street, London, WC1E 7HT, UK

<sup>b</sup> Department of Public Health and Epidemiology, Universidad de los Andes, Avenida Monseñor Álvaro del Portillo, 12455, Las Condes, Santiago, Chile

<sup>c</sup> Faculty of Education, Pontificia Universidad Católica de Chile, Av. Vicuña Mackenna, 4860, Macul, Santiago, Chile

<sup>d</sup> School of Nursing (Campus San Felipe), Universidad de Valparaíso, Camino La Troya With El Convento, San Felipe, Chile

### ARTICLE INFO

#### Article history:

Available online 2 May 2016

#### Keywords:

Mental health  
Adolescents  
School membership

### ABSTRACT

Mental health problems among adolescents are prevalent and are associated with important difficulties for a normal development during this period and later in life. Understanding better the risk factors associated with mental health problems may help to design and implement more effective preventive interventions. Several personal and family risk factors have been identified in their relationship to mental health; however, much less is known about the influence of school-related factors. One of these school factors is school belonging or the psychological sense of school membership. This is a well-known protective factor to develop good academic commitment, but it has been scarcely studied in its relationship to mental health. We explored this association in a sample of early adolescents and found that students who reported having a high level of school membership had lower mental health problems, even after controlling for several personal and family factors.

© 2016 The Authors. Published by Elsevier Ltd on behalf of The Foundation for Professionals in Services for Adolescents. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

### Introduction

Mental health among children and adolescents is a major concern worldwide. More than half of all adults with mental disorders had their onset before age 14 (Kessler et al., 2005). The 12-month prevalence of psychiatric disorders among young people is between 14 and 20% (National Research Council and Institute of Medicine, 2009). In Chile this figure is 23%, being more prevalent between girls than in boys (Vicente et al., 2012). Several individual,

\* Corresponding author. Department of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, Keppel Street, London, WC1E 7HT, UK. Tel.: +44 (0) 20 7636 8636.

E-mail addresses: [jorge.gaete@lshtm.ac.uk](mailto:jorge.gaete@lshtm.ac.uk) (J. Gaete), [crojash@uc.cl](mailto:crojash@uc.cl) (C.A. Rojas-Barahona), [eolivaresv@yahoo.com](mailto:eolivaresv@yahoo.com) (E. Olivares), [Ricardo.Araya@lshtm.ac.uk](mailto:Ricardo.Araya@lshtm.ac.uk) (R. Araya).

<sup>1</sup> Tel.: +56 (2) 2354 53 62.

<sup>2</sup> Tel.: +56 (34) 243 1221.

familial and school factors have been identified (National Research Council and Institute of Medicine, 2009). Among the school factors, victimization and violence in the school appear to be important determinants of mental health among adolescents (Gilreath, Astor, Estrada, Benbenishty, & Unger, 2014). Among other school factors we found that school membership appears to be associated with academic commitment and performance (Adelabu, 2007; Goodenow & Grady, 1993) but few studies have investigated its association with mental health among early adolescents (Chang et al., 2013; Shochet, Smith, Furlong, & Homel, 2011). This study provides further evidence regarding this association. The aim of this study is to examine the association between school membership and self-reported mental health among early adolescents, controlling for several personal and family factors.

## Methods

### Participants

This is a cross-sectional analysis of the baseline assessment of a longitudinal study among early adolescents (5th to 7th graders). Students in these grades from ten state funded schools in the city of San Felipe, Chile, were eligible to participate in the longitudinal study. Informed consent from caregivers and assent from students were required in order to participate. A total of 1035 parents were contacted to participate in this study and 682 consented. However, only 560 students completed the assessments (112 did not attend on that day and 10 did not assent).

In this sample, 49.1% were female and the mean age was 11.5 years old ( $SD = 1.2$ ). See Table 1 for description of sample.

### Measurements

The self-reported adolescent version of the Strengths and Difficulties Questionnaire (SDQ) (Goodman, Ford, Simmons, Gatward, & Meltzer, 2000), was used to assess mental health among students. This is a brief questionnaire aiming to assess psychological adjustment among children and adolescents. There are versions for parents and teachers, and there is a version for adolescents who can assess themselves independently when they are between 8 and 16 years old. This questionnaire has 25 items, divided in five subscales: emotional symptoms, conduct problems, hyperactivity-inattention problems, peer problems and prosocial behavior. These five subscales can be organized into two major sub-scales: strengths (prosocial behavior) and difficulties (the other four subscales). It has been translated to more than 40 languages. We used the authorized Spanish version. More information can be found in [www.sdqinfo.com](http://www.sdqinfo.com).

Psychological Sense of School Membership (abbreviated version) was used to evaluate school belonging (Goodenow & Grady, 1993). This scale includes 13 items assessing the thoughts and feelings students may have in relation to their school ("I feel proud to belonging to this school"), teachers ("The teachers here respect me") and classmates ("Other students here like me the way I am"). The Cronbach's alpha of this scale was 0.84.

The following students' variables were included in the analysis: age, sex, general health perception [1 = Less healthy than others; 2 = As healthy as others; 3 = Healthier than others], conformity with own weight [1 = Unhappy with my weight; 2 = More or less happy; 3 = Very happy with my weight] and own physical appearance [1 = Unhappy with my physical appearance; 2 = More or less happy; 3 = Very happy with my physical appearance], number of hours spent watching TV [from <1 h to  $\geq 5$  h] and number of nights in weekdays sleeping at least 6–8 hours [from None to 5 nights].

As for measures collected from parents the following were included: Family structure [1 = Parent living apart; 2 = Parents living together]; mental health, using the General Health Questionnaire – 12 [high score means more mental health symptoms]; family functioning [higher score means better family functioning]; and parental educational level [from low educational achievement (1 = Unfinished Primary school) to high educational achievement (8 = University studies completed)].

### Data analysis

To study the associations we conducted several regression models. Firstly, to estimate the statistical significance of the models, we calculated Wilks, lambda, Pillai's trace, Lawley-Hotelling trace, and Roy's largest roots. Secondly, to determine the R-squares for each regression model we conducted a multivariate multiple regression model using the commands "manova" and "mvreg" (UCLA: Statistical Consulting Group, 2016). Thirdly, we performed univariable and multivariable regression models in two sequential steps: 1) Unadjusted models: all variables were assessed to determine if they were associated with the five sub-scales of SDQ; and 2) Adjusted models: those that had an univariable association at a p value lower than 0.05, were selected to be included in the final multivariable model. All analyses were conducted using STATA version 12.1.

### Ethical aspects

This study was approved by the Bioethical Committee of Universidad de los Andes (Chile) (June 18th, 2014). It was performed in accordance with the Declaration of Helsinki. All participants gave informed consent and assent.

**Table 1**  
Descriptive variables.

Students variables	<i>n</i>	% (95%CI)/Mean (SD)
Age	560	11.5 (1.2)
Gender (Female)	560	49.1 (45.0–53.3)
Grade level		
Year 5	186	33.2 (29.3–37.1)
Year 6	186	33.2 (29.3–37.1)
Year 7	188	33.6 (29.6–37.5)
Health perception		
Less healthy than other students	94	16.9 (13.8–20.0)
As healthy as other students	281	50.4 (46.3–54.6)
Healthier than other students	183	32.7 (28.8–36.6)
Conformity with own weight		
Unhappy with my weight	116	20.8 (17.4–24.2)
More or less happy	242	43.3 (39.1–47.4)
Very happy with my weight	200	35.9 (31.9–40.0)
Conformity with own physical appearance		
Unhappy with my physical appearance	83	14.9 (11.9–17.9)
More or less happy	218	39.1 (35.1–43.2)
Very happy with my physical appearance	257	46.0 (41.8–50.1)
Hours in a weekday watching TV		
<1 h	189	33.9 (30.0–37.9)
1 h	117	21.0 (17.6–24.4)
2 h	121	21.7 (18.3–25.2)
3 h	52	9.3 (6.9–11.8)
4 h	33	5.9 (4.0–7.9)
≥5 h	45	8.1 (5.8–10.3)
Nights sleeping at least 6–8 hours in weekdays		
None	183	33.0 (29.0–36.9)
1 night	130	23.4 (19.9–27.0)
2 nights	100	18.0 (14.8–21.2)
3 nights	55	9.9 (7.4–12.4)
4 nights	32	5.8 (3.8–7.7)
5 nights	55	9.9 (7.4–12.4)
School Membership	548	3.7 (0.7)
Mean score Difficulties Sub-scale SDQ	555	15.3 (6.4)
Emotional symptoms sub-scale	555	4.5 (2.3)
Conduct problems sub-scale	555	3.2 (2.1)
Hyperactivity-inattention sub-scale	555	4.5 (2.3)
Peer problems sub-scale	555	3.1 (2.0)
Mean score Prosocial Sub-scale SDQ	555	7.4 (1.9)
Parental variables	<i>n</i>	% (95%CI)/Mean (SD)
Family structure		
0 = Living with one parent	223	40.0 (36.0–44.0)
1 = Living with both parents	334	60.0 (55.9–64.0)
General Health Questionnaire – 12	543	3.33 (3.4)
Family functioning	528	4.00 (0.7)
Parents educational level		
Primary unfinished	71	12.9 (10.1–15.2)
Primary finished	60	10.9 (8.3–13.5)
Secondary unfinished	88	16.0 (13.0–19.1)
Secondary finished	206	37.5 (33.5–41.6)
Post-secondary Technical unfinished	22	4.0 (2.4–5.7)
Post-secondary Technical finished	65	11.8 (9.1–14.6)
University unfinished	12	2.2 (1.0–3.4)
University finished	25	4.6 (2.8–6.3)

## Results

The mean score of the Difficulties sub-scale was 15.3 (SD = 6.4). Considering the cut-off points suggested by the authors of this scale (Meltzer, Gatward, Goodman, & Ford, 2000), a 53.3% of students were within a “normal” range, 20.0% within the “limit” range, and 26.7% in the “abnormal” range. Using similar cut-off scores for the SDQ among 11–15 years old British students the proportions were: 83.5%, 11.3% and 5.2%, respectively (Meltzer et al., 2000).

In the multivariable multiple regression analyses, all tests to assess the model showed that it was significant (Wilks, lambda, Pillai's trace, Lawley-Hotelling trace, and Roy's largest roots had a *p*-value <0.001). A full model including all 12 independent variables explained 17%, 15%, 12%, 24% and 27% of the variance in the outcome variables emotion symptoms, conduct problems, hyperactivity-inattention problems, peer problems and prosocial behavior, respectively.

**Table 2**

Unadjusted and adjusted regression models exploring the association between sense of school membership and mental health among early adolescents, before and after adjusting for several other individual and family factors.

Variables	Emotional symptoms		Conduct problems		Hyperactivity-inattention problems		Peer problems		Prosocial behavior	
	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
<i>Students variables:</i>	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$	$\beta$
School membership	–0.38*	–0.30*	–0.71**	–0.64**	–0.62**	–0.49**	–0.93**	–0.88**	1.05**	0.95**
Age	0.01		0.14		0.12		–0.10		–0.04	
Gender	1.07**	1.08**	–0.34		–0.38		–0.03		0.90**	0.80**
Health perception	0.08		0.18		–0.06		–0.21		0.12	
Conformity with own weight	–0.43**	0.06	–0.20		–0.43*	0.04	–0.27*	0.13	0.03	
Conformity with own physical appearance	–0.55**	–0.43*	–0.31*	–0.10	–0.55**	–0.43*	–0.44**	–0.30	0.13	
Hours watching TV daily	–0.02		0.14*	0.06	0.18*	0.09	–0.05		–0.14*	–0.06
Nights sleeping at least 6–8 h in weekdays	0.11		0.16*	0.07	0.21**	0.12	0.06		–0.16*	–0.03
<i>Parental variables:</i>										
Family structure	–0.19		–0.07		–0.39*	–0.30	0.16		0.09	
General Health Questionnaire – 12	0.08*	0.66*	0.03		0.04		0.06*	0.02*	–0.01	
Family functioning	–0.27		–0.42*	–0.30*	–0.15		–0.44*	–0.31*	0.29*	0.26*
Parental educational level	–0.01		–0.08		–0.00		–0.09		0.10*	0.08

Note: Age [10–14 years old]; Gender [0 = Male; 1 = Female]; Health perception [1 = Less healthy than others; 2 = As healthy as others; 3 = Healthier than others]; Conformity with own weight [1 = Unhappy with my weight; 2 = More or less happy; 3 = Very happy with my weight]; Conformity with own physical appearance [1 = Unhappy with my physical appearance; 2 = More or less happy; 3 = Very happy with my physical appearance]; Number of nights in weekdays sleeping at least 6–8 h [from None to 5 nights]; Hours spent watching TV [from <1 h to  $\geq 5$  h]; Family structure [0 = Parents living apart]; Family functioning [higher score means better family functioning]; and Parental educational level [from low educational achievement (1 = Unfinished Primary school) to high educational achievement (8 = University studies completed)].

\* $p \leq 0.05$ ; \*\* $p \leq 0.001$ .

In the adjusted results we found that sense of school membership was strongly associated with all facets of mental health. Having a stronger sense of school membership reduced the probability of having emotional, conduct, hyperactivity and peer problems, and increased the probability of having prosocial skills. Girls had a higher chance of reporting emotional problems, but also an increased probability of having good prosocial skills. Students who felt happier regarding their physical appearance had a lower risk of emotional and hyperactivity problems. Poorer parental mental health was associated with an increased risk of emotional and peer problems among students. Finally, if parents reported a better family functioning, their off-spring had a reduced risk of having conduct and peer problems, and an increase likelihood of having good prosocial skills (see Table 2).

## Discussion

As far as we are aware, this is the first study in Latin American and one of a few worldwide, exploring the association between school membership and mental health among early adolescents, including relevant confounding factors in the analyses, such as parental mental health and family functioning. We found that those students having a higher level of sense of school membership had lower mental health problems. However, we cannot argue that this is a causal relationship, the follow-up measures of these students and their families will give us a better understanding of the longitudinal association between these variables.

We found other variables related to some facets of adolescent psychological adjustment, such as conformity with physical appearance, parental mental health and family functioning. Further research is needed to explore better these variables.

Finally, these results support the evidence of the association between school membership and mental health, which may need to be considered when designing educational interventions, not only with the purpose of improving academic performance but also mental health among early adolescents.

## Conflict of interest

All authors have no conflicts of interest to declare.

## Acknowledgments

The National Commission for Scientific and Technological Research (CONICYT), through the grant “FONIS EVS 13I0100 (2014–2016): Parental influences on health promoting behaviors among early adolescents”, supported this study.

The results of this study were submitted to and accepted as an Oral Presentation in the Scientific Meeting “XV International Conference of Educational Psychology”, which took place in Santiago of Chile on November 18th–20th, 2015.

We thank all research staff involved in the evaluation team. Our special thanks to all students and their families who participated in the study.

## References

- Adelabu, D. H. (2007). Time perspective and school membership as correlates to academic achievement among African American adolescents. *Adolescence*, 42, 525–538.
- Chang, W. W., Su, H., Wang, J., Wang, C. C., Shan, X. W., & Han, Q. (2013). Problem behaviours of middle school students in eastern China and its associated factors. *Child: Care, Health and Development*, 39, 660–667.
- Gilreath, T. D., Astor, R. A., Estrada, J. N., Jr., Benbenishty, R., & Unger, J. B. (2014). School victimization and substance use among adolescents in California. *Prevention Science*, 15, 897–906.
- Goodenow, C., & Grady, K. E. (1993). The relationship of school belonging and friends' values to academic motivation among urban adolescent students. *The Journal of Experimental Education*, 62, 60–71.
- Goodman, R., Ford, T., Simmons, H., Gatward, R., & Meltzer, H. (2000). Using the Strengths and Difficulties Questionnaire (SDQ) to screen for child psychiatric disorders in a community sample. *British Journal of Psychiatry*, 177, 534–539.
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62, 593–602.
- Meltzer, H., Gatward, R., Goodman, R., & Ford, F. (2000). *Mental health of children and adolescents in Great Britain*. London: The Stationery Office.
- National Research Council and Institute of Medicine. (2009). Preventing mental, emotional, and behavioral disorders among young people: progress and possibilities. Committee on the prevention of mental disorders and substance abuse among children, youth, and young adults: research advances and promising interventions. In M. Ellen O'Connell, T. Boat, & K. E. Warner (Eds.), *Board on children, youth, and families, division of behavioral and social sciences and education*. Washington, DC: The National Academies Press.
- Shochet, I. M., Smith, C. L., Furlong, M. J., & Homel, R. (2011). A prospective study investigating the impact of school belonging factors on negative affect in adolescents. *Journal of Clinical Child & Adolescent Psychology*, 40, 586–595.
- UCLA: Statistical Consulting Group. (2016). *Stata data analyses examples: Multivariate regression analysis*. <http://www.ats.ucla.edu/stat/stata/dae/mvreg.htm> Accessed 10.01.16.
- Vicente, B., Saldivia, S., de la Barra, F., Kohn, R., Pihan, R., Valdivia, M., et al. (2012). Prevalence of child and adolescent mental disorders in Chile: a community epidemiological study. *Journal of Child Psychology and Psychiatry*, 53, 1026–1035.